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AGO D/A ltr, 29 Apr 1980

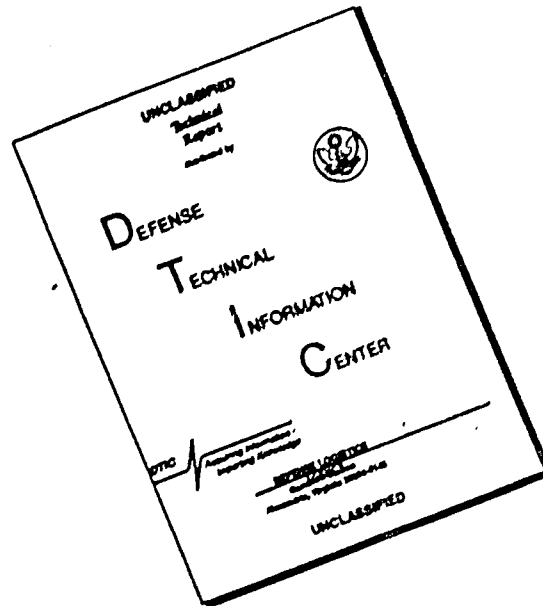
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DEPARTMENT OF THE ARMY
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WASHINGTON, D.C. 20310

IN REPLY REFER TO

AGDA (M) (2 Feb 70) FOR OT UT 694296

5 February 1970

SUBJECT. Operational Report - Lessons Learned, Headquarters, 84th
Engineer Battalion, Period Ending 31 October 1969

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2. Information contained in this report is provided to insure appropriate benefits in the future from lessons learned during current operations and may be adapted for use in developing training material.

BY ORDER OF THE SECRETARY OF THE ARMY:

Kenneth G. Wickham

KENNETH G. WICKHAM
Major General, USA
The Adjutant General

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DEPARTMENT OF THE ARMY
HEADQUARTERS, 84TH ENGINEER BATTALION (CONSTRUCTION)
APO San Francisco 96238

EGCC-CO

31 October 1969

SUBJECT: Operational Report - Lessons Learned, 84th Engineer
Battalion (Construction), for the period ending 31
October 1969, RCS CSFOR-65 (R2)

THRU: Commanding Officer
937th Engineer Group (Combat)
APO 96318

Commanding General
18th Engineer Brigade
ATTN: AVBC-C
APO 96377

Commanding General
United States Army, Vietnam
ATTN: AVHGC-DST
APO 96375

Commander In Chief
United States Army, Pacific
ATTN: GPOF-DT
APO 96558

TO: Assistant Chief of Staff for Force Development
Department of the Army (ACSFOR-DA)
Washington, D.C. 20310

FOR OT UT

694296

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EGCC-CO

SUBJECT: Operational Report - Lessons Learned of the 84th Engineer
Battalion (Construction) for the Period Ending 31 October
1969, RCS CSFOR-65 (R2)

1. Operations

a. Command: Assigned and attached units are listed in Inclosure 1.

b. Unit Operations:

(1) LOC Restoration of QL-1, Tuy An to Tuy Hoa: The major portion of the horizontal construction capability of the Battalion was employed on this project. At the end of the quarter the restoration was 56% complete with 22 kilometers of subbase, 19.6 kilometers of base course, and 4.4 kilometers of paved roadway finished. Work accomplished during the quarter included the placement of 40,000 cubic yards of laterite, 35,000 cubic yards of crushed rock, and 4000 tons of asphaltic concrete. The quarry and crusher operation continued to support this project by crushing over 40,000 cubic yards of rock. This increased production was achieved by operating the crusher on a 24 hour basis. Additional haul capability was provided by the 585th Dump Truck Company and a platoon from the 509th Panel Bridge Company. This capability was further augmented by the addition of 15 MCA 12 cubic yard dump trucks.

(2) LOC Restoration of QL-1 from Phu Tai to Binh Thanh: This project has been completed except for a short section in the Cu Mang Pass. During this reporting period, over 51,000 cubic yards of rock and laterite were moved using explosives and earth-moving equipment. RMC was given a contract late in the quarter to assist the 84th Engr Bn (Const) in the completion of this project.

(3) Cold Storage Warehouse, Qui Nhon: Additional purlins were installed in the Cold Storage Warehouse roof. Construction was also started on an addition to the loading dock.

(4) Underground POL Pipeline Tuy Hoa AFB to Vung Ro Bay: Installation of the pipeline was completed by burying 60,720 feet of 6 inch and 8 inch parallel pipelines. The 8" line has been accepted by the user and has pumped over 4 million gallons of fuel since construction was completed. Preparations are continuing for acceptance of the 6" line.

(5) Road Maintenance: Road maintenance became a major task during periods of heavy monsoons rains. The Battalion effort was concentrated along QL-1 where culverts, bypasses, and bridges required repair. At Bridge #273, CQ070815, an Eiffel span was replaced with a 38 foot M&T6 dry span, and a bent was restored.

(6) Ammunition Off-Loading Facility, Qui Nhon: Progress on the Ammo Off-Loading Facility included the completion of concrete placement, walers, and bollards. The area in front of the facility was dredged and the area behind the retaining wall was backfilled with sand. Laterite and rock were hauled, spread, and compacted for the hardstand area, access roads, and storage area.

(7) Class II & IV Warehouses, Long My Depot: One 120'x200' Rhoads Dudley Building and one 120'x200' Michman Building were completed during the quarter.

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(8) Other Selected Projects:

(a) One platoon from Company D has begun work on the MACV Advisor Facility at Tuy Hoa.

(b) The 536th Engr Det (PC) with a platoon from the 497th Engr Co (PC) has begun construction of dolphins to protect the Qui Nhon POL Jetty.

(c) The Tandom Switch Building revetments have been completed.

c. Intelligence and Counterintelligence: Enemy activity throughout the Battalion's area of responsibility was moderate during the first half of the reporting period and light during the later half. One minor stand off B-41 rocket attack on Camp Sherman Williams Compound (HQ, 84th Engr Bn (Const)) resulted in negative casualties and minor damage. Enemy harassment of work parties and LOC's consisted of 12 reportable incidents of minings, ambushes, and sniper fire resulting in 1 US KIA, 15 US WIA, 4 vehicles destroyed, and 3 other vehicles damaged. Additionally, one bridge was destroyed by explosives. During the enemy summer/fall campaign and the seven week lull in enemy activity from mid September to the end of October, good intelligence continued to be maintained by this unit with the Capitol ROK Infantry Division, 22nd ARVN Infantry Division, 173rd Airborne Brigade, Binh Dinh and Phu Yen Province MACV Advisors and VN Forces and other combat and combat support units in the Battalion's area of responsibility.

d. Plans and Training: Planning for construction of a 1400 foot bridge at Bong Son is now underway. Increased emphasis was placed on training during this quarter with Sunday mornings reserved for training and standdown maintenance.

e. Personnel, Administration, Morale and Discipline: During this reporting period there were a total of 55 personnel recommended for awards, and 87 personnel voluntarily extended their Foreign Service Tour, which represents an increase of 31 individuals over the previous reporting period. There were 42 disciplinary cases including 31 Article 15's and 4 Special Courts-Martials's.

f. Logistics: During the past quarter, the S-4 Section gave logistical support to organic companies and attached units of the 84th Engr Bn (Const). The areas of logistical support included:

(1) Procurement and distribution of Class A rations for 900 personnel daily.

(2) Operation of two water points producing 45,000 gallons of potable water daily.

(3) Supply of Class II TCE equipment. An average of 100 equipment and supply requisitions were processed weekly by the property book section. During the quarter 180 new pieces of TCE and MCA equipment were acquired.

(4) Supply of Class IV Construction Materials to all units for MCA funded projects. An average of 150 requisitions for construction materials were processed weekly by the S-4 Section.

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SUBJECT: Operational Report - Lessons Learned of the 84th Engineer Battalion (Construction) for the Period Ending 31 October 1969, RCS CSFOR-65 (R2)

(5) Resupply of unit basic loads and demolitions through the Phu Tai AED. An average of 10,000 pounds of dynamite were used monthly for quarry operations.

(6) Receiving sufficient M16A1 rifles to bring the Battalion to 93% of authorization.

g. Inspector General: The USARV Inspector General inspected the 84th Engr Bn during the period 13-17 October 1969. An overall rating of satisfactory was given to the Battalion.

h. Civic Action: This Battalion undertook a variety of civic action projects during this quarter. Voluntary contributions totaling \$VN 102,305 were made by members of the Battalion. This money was distributed among several orphanages. As part of the civic action program 500 board feet of scrap lumber and 20 feet of culvert were distributed to schools and medical facilities. During this quarter 32 randays were devoted to civic action projects.

1. ARVN Affiliations

(1) Members of the 84th Engr Bn (Const) have continued to develop meaningful relationships with our ARVN counterparts. Liaison and technical advice are being provided for the construction of Bridge 241 at Tuy Hoa. 84th Engineer Battalion personnel are assisting in the continued planning for the bridge construction and are coordinating material and equipment acquisition.

(2) Equipment and instructors have been provided for training ARVN Engineers to operate the 40-ton crane and the 290M Tractor-Scraper. The skills of Arc and Gas welding were also presented in training sessions. Approximately 235 class hours on the 40-ton crane and 95 hours on welding have been given during the last quarter. 196 hours of instruction were given on the 290M.

(3) During recent heavy rainfall along QL-1, engineers from the 20th ARVN Gp and the 84th Engr Bn (Const) combined forces to repair pot holes and washed out culverts in an effort to keep this vital line of communication open.

2. Lessons Learned: Commander's Observations, Evaluations, & Recommendations

a. Personnel

(1) Item: Daily MOS Inventory

OBSERVATION: Valuable man-hours were being expended each month in preparation of the monthly MOS Inventory report and furnishing various staff elements strength figures for the Battalion.

EVALUATION: A reduction of man-hours was necessary to cut down the time of preparation of monthly MOS Inventories and time consumed furnishing strength figures to staff elements.

RECOMMENDATION: A daily MOS inventory has been initiated for each company and attached units of the 84th Engr Bn (Const). This inventory is posted on a daily basis utilizing the morning report. By utilization of this daily MOS inventory, a reduction of 10 man-hours per month has resulted.

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SUBJECT: Operational Report - Lessons Learned of the 84th Engineer Battalion (Construction) for the Period Ending 31 October 1969, RCS CSFCR-65 (R2)

b. Intelligence: None

c. Operations

(1) Item: Installation of Buried Pipeline

OBSERVATION: Considering materials availability and other factors, the decision was made to bury two coupled pipelines in an insecure area where pilferage had been a major problem. It was planned that short sections of the lines between valves would be flushed with water; however, this was not done because of a shortage of pumps. Covers were coupled on open ends of the lines at night. Forces were not available to secure the lines at night. After completion of construction much time and fuel was lost because of blockages in the lines. The blockages were caused by lumber, rocks and other materials.

EVALUATION: The enemy was able to sabotage the lines by removing the coupled covers, placing materials far enough down the lines so that they were not detected, and recapping the lines. The failure to flush the line allowed the problem to go undetected until after the lines were placed into operation.

RECOMMENDATION: When pipelines are installed in insecure areas, the lines should be guarded by security forces until they are buried. The lines should be flushed prior to burial to insure that no blockages exist. These measures will reduce the time required to develop a fully operational pipeline system and will prevent an unnecessary loss of fuel.

(2) Item: Interdiction of a Main Supply Route

OBSERVATION: During recent heavy monsoon rains, QL-1 was washed out in several places. Engineers were seriously hampered in their efforts to repair the road because civilian and military traffic blocked access to the trouble spots.

EVALUATION: Traffic congestion was caused by insufficient dissemination of road information, lack of timely traffic control, and incomplete coordination between free world military forces.

RECOMMENDATION: The interdiction of a main supply route in a theater of operations such as Vietnam is a contingency which requires advance planning by the tactical commander having jurisdiction over all route users. This plan should provide for aerial reconnaissance, traffic control, convoy restrictions and other measures necessary to allow rapid repair of the damaged road.

(3) Item: Criteria for Acceptance of POL Pipelines

OBSERVATION: The acceptance of the recently constructed 6" and 8" underground pipelines between Vung Ro Bay and Tuy Hoa, RVN, became the source of concern because the using unit had not defined acceptance criteria prior to the completion of construction.

EVALUATION: Early planning of pipeline construction should include detailed consideration of the exact criteria required for pipeline acceptance.

RECOMMENDATION: Required flow rates, pumping pressures and other acceptance criteria must be defined during early planning stages. Additionally, pipeline

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SUBJECT: Operational Report - Lessons Learned of the 84th Engineer
Battalion (Construction) for the period Ending 31 October
1969, RCS CS FGR-65 (R2)

maintenance responsibilities should be clearly delineated before actual construction begins.

(4) Item: Rolling Door Construction

OBSERVATION: Heavy warehouse doors on Rhein Dudley Buildings are mounted on overhead rollers that are difficult to open and close. Also, they are easily torn loose from the rollers.

EVALUATION: Such heavy rolling doors should have some type of support to prevent their detachment from the rollers. Also, the doors should be constructed so they may be easily opened and closed by one person.

RECOMMENDATION: A U shaped rail, slightly wider than the door rollers that are being installed, should be placed in concrete at the base of the doorway. The door should be hung by the top rollers and then the same number of rollers should be attached to the bottom of the door. In this manner, these rollers will roll along the bottom rail and give additional support to the door.

(5) Item: Dredging with 40-Ton Crane

OBSERVATION: Dredging to a depth of 10 feet below water level was required immediately in front of an Ammo Off-Loading Dock. The material to be dredged consisted of a sandy silt.

EVALUATION: A 40-ton crane with a clamshell was able to get satisfactory loads and efficiently dredge the required area.

RECOMMENDATION: The 40-ton crane with a clamshell can be effectively employed to dredge small shallow areas.

(6) Item: Expedient Maintenance Facility

OBSERVATION: During the rainy season, proper preventive maintenance and operational checks of the undercarriage of vehicles were not being performed by the operators because of inadequate facilities.

EVALUATION: To improve working conditions, a safe rack had to be built to allow operators to work under vehicles.

RECOMMENDATION: A rack was constructed using 16"x16"x10' timbers for support and salvaged M4T6 bulk for decking. A 30" space was left in the center to insure ample working area. This rack is being used for $\frac{1}{2}$ ton up to 10 ton vehicles, and has significantly improved preventive maintenance.

(7) Item: Leaks in large corrugated sheet metal roofs

OBSERVATION: The corrugated sheet metal roof on the large Cold Storage Warehouse in Qui Nhon, RVN was observed not to be watertight after the completion of construction. Puddles of water were forming on the top of the vapor seal in the attic space and threatening damage to the insulation.

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EVALUATION: The sheet metal roof was flexing under wind loads and allowing rain to enter the building under the end laps. Design spacing of purlins was determined to be excessive.

RECOMMENDATION: Additional purlins were installed to reduce the maximum center to center spacing to 2 feet. This modification eliminated the leaks due to sheet metal flexing.

(8) Item: Emergency Bypasses

OBSERVATION: The placement of a culvert in a swift stream is difficult as the stream tends to move the culvert.

EVALUATION: A method is needed to anchor culverts prior to backfilling.

RECOMMENDATION: Emergency bypass culverts can be secured in swift streams by using 7 foot lengths of #9 Ribbar driven at the rear and sides of each culvert. Positioning a culvert in swift current can be accomplished by using the 7 foot lengths of #9 Ribbar as stakes on the near and far shores with ropes attached to the culvert. The ribbar can be recovered after the culvert has been positioned.

(9) Item: Trailer Brakes

OBSERVATION: When parking $\frac{1}{2}$, $\frac{3}{4}$ and $1\frac{1}{2}$ ton trailers for prolonged periods of time, the brakes stick and require considerable effort to free.

EVALUATION: Brakes have a tendency to stick because the humidity causes the fiber brake shoes to adhere to the metal drums.

RECOMMENDATION: When parking trailers for prolonged periods of time, it is recommended that blocking be placed in front & behind the wheels instead of using the hand brake.

(10) Item: Keeping snakes out of culvert type bunkers

OBSERVATION: A culvert, when built into a burn as a fighting position, often becomes a snake trap. The snakes not only fall into the culvert from the top, but also burrow their way into the bunker through the bottom.

EVALUATION: A method was needed to keep snakes out of culvert type bunkers.

RECOMMENDATION: Screening material can be placed on the bottom of the hole and the culvert then can be placed on the screen. This prevents snakes from burrowing into the bunker. Screen can also be placed loosely across the top. This keeps the snakes from falling into the hole, but still allows a man to easily jump into the bunker.

(11) Item: Grinder Bolts

OBSERVATION: Bolts that hold cutting edges on ton grinder blades often become twisted or broken.

EVALUATION: Obstructions are catching on the excess thread on these bolts and causing the damage.

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Battalion (Construction) for the Period Ending 31 October
1969, RCS CSFOR-65 (R2)

RECOMMENDATION: If the excess thread is cut off at the time they are installed, the bolts have a much longer lifetime.

d. Organization: None

e. Training:

(1) Item: Operation of the 290M Training Course

OBSERVATION: While conducting a 290M tractor-scraper training course for members of the ARVN Engineers, the most difficult problem was the lack of communication.

EVALUATION: Although a qualified interpreter was used, he was not familiar with the operation and nomenclature of the 290M tractor-scraper. He consequently did not fully understand the technical terms used in the training course.

RECOMMENDATION: Prior to the conduct of the training course, the instructor must fully train the interpreter in all aspects of operation and maintenance of the particular construction equipment.

f. Logistics: None

g. Communications: None

h. Material:

(1) Item: Expedient Storage of Cement

OBSERVATION: Cement was being damaged by rains and covered storage space was not available.

EVALUATION: Suitable expedient covering was necessary.

RECOMMENDATION: The cement was stacked in the shape of a general purpose medium tent. The tent was then placed over the cement and rain damage was eliminated.

i. Other: None

~~Incl~~
as
Incl wd HQ, DA

Richard M. Wells
RICHARD M. WELLS
LTC, CE
Commanding

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EGC-CO (31 Oct 69) 1st Ind


SUBJECT: Operational Report on Lessons Learned for the Period 1 October through 31 October 1969

DA, HEADQUARTERS, 937TH ENGINEER GROUP (COMBAT), APC 96318, 24 November 1969

TO: Commanding General, 18th Engineer Brigade, ATTN: AVBC-OS, APO 96377

1. The subject report, submitted by the 84th Engineer Battalion (Construction), has been reviewed and is considered a well compiled report of organization activities.

2. I concur with the observation and recommendations of the Battalion Commander.



W.G. KRATZ
COLONEL, CE
Commanding

AVHC-SS (31 Oct 69) *2d Ind*

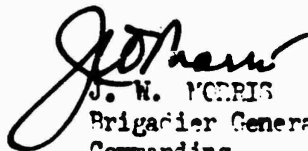
SUBJECT: Operational Report of the 84th Engineer Battalion (Const)
for the Period Ending 31 Oct 69, RGS GSFOR-65 (R2)

TA, HEADQUARTERS, 18TH ENGINEER BRIGADE, APO 96377 16 DEC 1969

TO: Commanding General, U.S. Army Vietnam, ATTN: /VHCC-DCT, APO 96375

1. This Headquarters has reviewed the Operational Report - Lessons Learned for the 84th Engineer Battalion (Const), as indorsed by the 937th Engineer Group (Combat). The report is considered to be an excellent account of the Battalion's activities during the reporting period.

2. This Headquarters concurs with the observations and recommendations of the Battalion and Group Commanders.


J. N. MORRIS
Brigadier General, USA
Commanding

CF:

1 - CG, 937th Engr Gp

1 - CG, 84th Engr Bn

AVHGC-DST (31 Oct 69) 3d Ind

SUBJECT: Operational Report - Lessons Learned, 84th Engineer Battalion
(Construction), for the Period Ending 31 October 1969, RCS CSFOR-65 (R2)

HEADQUARTERS, UNITED STATES ARMY, VIETNAM, APO San Francisco 96375 9 JAN 1970

TO: Commander in Chief, United States Army, Pacific, ATTN: GPOP-DT,
APO 96558

1. This headquarters has reviewed the Operational Report - Lessons Learned for the quarterly period ending 31 October 1969 from Headquarters, 84th Engineer Battalion (Construction) and comments of indorsing headquarters.
2. Reference item concerning "Trailer Brakes", page 6, paragraph 2c(9); concur. The solution to the problem of the sticking of two wheel trailer brakes, advanced by the unit, is the only practical solution under the existing circumstances. As a precautionary measure, it is suggested that when a trailer is of necessity parked on an incline, wheel blocks be secured to the wheels with a length of wire to prevent accidental displacement and a "runaway" trailer.

FOR THE COMMANDER:

Norman D. Selby, LTC

Cy furn:
84th Engr Bn
18th Engr Bde

GPOP-DT (31 Oct 69) 4th Ind

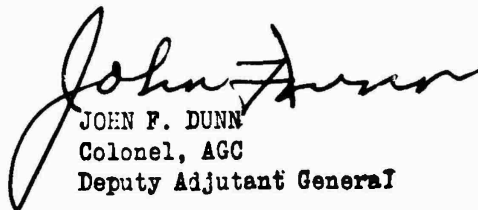
SUBJECT: Operational Report of HQ, 84th Engineer Battalion (Construction)
for Period Ending 31 October 1969, RCS CSFOR-65 (R2)

HQ, US Army, Pacific, APO San Francisco 96558 15 JAN 70

TO: Assistant Chief of Staff for Force Development, Department of the
Army, Washington, D. C. 20310

This headquarters concurs in subject report as indorsed.

FOR THE COMMANDER IN CHIEF:


JOHN F. DUNN
Colonel, AGC
Deputy Adjutant General

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